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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFER ATPASE ACTIVITY HAS BEEN STUDIED IN SUBCELLULAR FRACTIONS OF BRAIN ON SUCROSE D. GRADIENTS. CELLULAR FRACTIONS WERE OBTAINED FROM RABBIT AND CATTLE BRAIN BY THE WHITTAKER METHOD. ATPASE ACTIVITY WAS DETD. AS SIMPLE INORG. PHOSPHATE PER MG OF PROTEIN AFTER INCUBATION OF PREPNS. AT 37DEGREES FOR 15 MIN IN MEDIUM CONTG. 0.028M TRIS-HCL, PH 7.4, 0.001M TRIS-ATP, 0.001M MGCL SUB2, 0.150M NACL PLUS 0.015M KCL, AND 100-200 MUG PROTEIN IN 1.8 ML. TRANSFER ATPASE OF APPROX. EQUAL ACTIVITY HAS DETECTED IN FRACTIONS OF MICROSOMES, NERVE ENDINGS, AND MYELIN. IN THE MYELIN FRACTION, THE ATPASE WAS APPARENTLY BOUND TO THE OUTER CELL MEMBRANE. THE NONIONIC DETERGENT TRITON X-100 EXTD. ACTIVE ATPASE FROM THE MYELIN AND MICROSOMAL FRACTIONS, BUT NOT FROM THE NERVE ENDING AND MITOCHONDRIAL FRACTIONS. DEOXYCHOLATE DID NOT EXT. ACTIVE TRANSFER ATPASE FROM THESE FRACTIONS. IT IS SUGGESTED THAT THE LOW LEVELS OF PHOSPHOLIPIDS IN DEOXYCHOLATE EXTS. MAY ACCOUNT FOR THE ABSENCE OF ATPASE ACTIVITY. TRITON X-100 IS RECOMMENDED FOR EXTN. OF HIGHLY ACTIVE ATPASE.

FACILITY: DEP. BIOCHEM. NERV. SYST., INST. BIOCHEM., KIEV, USSR.

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UDC: 577.153.35

PALLADIN, A. V., KIRSENKO, O. V., and VAVILOVA, G. L., Division of the Biochemistry of the Nervous System, Institute of Biochemistry, Academy of Sciences UkrSSR, Kiev

"Na + K - Activated ATP-ase of the Brain and Its Extraction by Means of Detergents"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 404-411

Abstract: The activity of Na + K - activated transfer ATP-ase in subcellular fractions from the brain of rabbits and cattle was studied. The fractions were separated from brain homogenates in a sucrose density gradient by applying a method described earlier (Ya. V. Belik, et al, Ukr. Biokhim, Zhur. 41, 3, 1969; V. P. Whittaker, Biochem. J., 72, 694, 1959). Approximately the same transfer ATP-ase activity was exhibited by the fractions corresponding to microsomes, nerve endings, and myelin. The activity of the myelin fraction was apparently associated with the external cell membrane, not the membrane-free myelin. The non-ionic detergent Triton X-100 extracted active ATP-ase from this fraction and from microsomes, but not from the fractions corresponding to nerve endings and to mitochondria. Deoxycholate did not extract active transfer ATP-ase from any of the fractions mentioned. The protein extracted with deoxycholate from microsomes had

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PALLADIN, A. V., et al, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 404-411

a much lower phospholipid content than that extracted with Triton X-100 from the same fraction - i. e., the two detergents extracted different parts of the lipoprotein membrane.

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USSR UDC 577.1:615.5:612.8.015

PARKHOMETS', P. K., PALLADIN, A. V., and KOCHERGA, V. Y., Institute of Biochemistry, Academy of Sciences Ukrainian SSR, Kiev

"Effect of Melipramine on Serotonin Uptake by Animal Brain Tissue"

Kiev, Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 42, No 6, 1970, pp 687-691

Abstract: The effect of melipramine on serotonin uptake by rat and rabbit brain tissue was studied in vivo and in vitro. Male albino rats weighing 180-200 g and rabbits weighing 1-1.5 kg were used. The rabbits were given an intraperitoneal injection of 50 mg/kg of melipramine, as well as an intracisternal injection of 100 mcg/kg of serotonin 4 hours 30 minutes before sacrifice. The rats were given 50 mg/kg of melipramine 4 hours before sacrifice and 20 mg/kg of serotonin 30, 60 and 90 minutes afterwards by intraperitoneal administration. The results of the in vitro studies indicate that melipramine inhibits the uptake of exogenous serotonin by the fraction of nerve endings and

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PARKHOMETS', P. K., et al., Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 42, No 6, 1970, pp 687-691

synaptic vesicles, as well inhibiting the liberation of serotonin from the fraction of nerve endings during incubation of the latter in a physiological medium. The results of the in vivo studies also indicate the possible inhibitory effect of melipramine on exogenous serotonin uptake by brain tissue. It is suggested that melipramine may inhibit the penetration of the nerve ending membranes by serotonin.

USSR PALLADIN A.V. UDC: 577.1

"Second All-Union Biochemical Congress"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

Abstract: The Second All-Union Biochemical Congress was held on 20-28 Oct 69 at Tashkent under the auspices of the Uzbek Department of the All-Union Biochemical Society. Symposia on evolutionary biochemistry, the connection between the structure and functions of proteins, the biosynthesis of proteins, the biochemistry of membranes, biological oxidation, the functional biochemistry of cell structures, the regulation of enzymatic processes, the structure and function of muscles, and other subjects were conducted. The introductory lecture, which dealt with the evolutionary aspects of nucleic acids, was given by A. N. BELOZERSKIY (Moscow). A leading report in the symposium on evolutionary biochemistry was presented by A. I. OPARIN (Moscow), who discussed theories and experimental results pertaining to the origin of life on earth. A report by V. A. STEPANOV (Moscow) dealth with the evolution of protein enzymes. In the symposium on the biosynthesis of proteins, A. A. BAYEV (Moscow) reported the results of work on the structure of various t-RNA and the properties of molecular fragments of valine t-RNA. In the course of this work, for which a State Prize was awarded, the succession of nucleotides in the valine t-RNA chain was fully clarified. A paper by L. L. KISELEVA

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(Moscow) dealt with the role of aminoacyl-t-RNA-synthetases in the synthesis of aminoacyl-t-RNA. t-RNA synthetases specific for methionine, formylmethionine, serine, lysine, and phenylalanine have been identified. A report by R. I. SAGLANIK (Novosibirsk) reviewed work on the suppression of the synthesis of virus nucleic acids by nucleases. Animal experiments showed that administration of DNA-ase prevented the death of mice infected with the viruses of tick-born encephalitis, influenza, and foot-and-mouth disease and made guinea pigs insusceptible for a certain length of time to infection with foot-and-mouth disease. The nucleases did not produce any toxic effects. Application of nucleases in the treatment of human virus diseases showed that they were effective in herpetic keratites, adenovirus conjunctivites, tick-born encephalitides, herpes zoster, and other diseases. At present DNA-ase for the treatment of these diseases is being produced industrially. Its application for 4 yrs at major foci of tick-born encephalitis in Siberia yielded very good results. Research is being continued on the use of nucleases in the treatment of virus diseases of farm animals. In the symposium on the biochemistry of membranes, P. G. KOSTRYUK (Kiev) in a report dealing with the transfer of ions in connection with the generation of excitation potentials by nerve cells expressed the opinion that the action of nerve impulse transmitters

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is associated not only with changes in membrane permeability, but also involves a direct effect producing transfer of cations. This was confirmed in a paper by A. A. BOLDYREV (Moscow), who found that acetylcholine inhibited the active transfer of Ca^{++} in a sarcoplasm reticulum fraction. The inhibition was exerted on ATP-ase, which brings about transfer of Ca^{++}, and presumably constituted an effect that makes possible the transfer of Ca^{++} from the reticulum during excitation. Boldyrev pointed out that in view of the localization within muscle cells of the enzymes that regulate acetylcholine metabolism, this effect produced by acetylcholine may be directly related to its functioning as an intracellular regulator of excitation processes. Reports given by members of the Kiev school of biochemists (A. V. PALLADIN, O. V. KIRSENKO, G. L. VAVILOVA, M. K. MALYSHEVA, and others) had a bearing on the functioning of Na-K - activated transport ATP-ases in membranes. I. I. IVANOV (Leningrad) found that ATP gelated sarcoplasm proteins of skeletal muscles, whereas Ca^{++} liquefied the gel that formed. He assumed that a reversible gelation produced in this manner is responsible for the plastic tonus of smooth and striated muscles. In a resolution passed by the Congress, progress in biochemical research was reviewed. It was stated that the membership of the Biochemical Society increased from 3500 to 6500 between the First and Second Congress. *Institutes of Proteins, Photosynthesis, and Physiology* and Biochemistry 3/4

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of Microorganisms were organized within the Academy of Sciences USSR. It was pointed out that it is necessary to conduct more intensive research in several fields including the structure of proteins in relation to their functional activity, biochemical genetics, and (in view of the importance of this field from the standpoint of solution of general problems of biochemistry) the biochemistry of microorganisms and viruses.

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UDC 577.1:612.8.015.547.96

PALLADIN, A. V., BELIK, YA. V., and POLYAKOVA, N. M.

Belki golovnogo mozga i ikh obmen (Protein Metabolism in the Brain), Kiev, 1972, 316 pp

Translation:

Annotation

The book reviews the literature and the results of the authors' studies on protein metabolism in different divisions of the central nervous system in different functional states of the body. It examines the role in the blood-brain barrier in membrane transport of amino acids and in the formation of amino acid reserves in brain tissues. The book briefly considers the main stages and principal directions of research on protein metabolism in the central and peripheral nervous systems. It also describes the most important morphological, functional, and biochemical characteristics of nervous tissue responsible for the specific nature of the metabolic processes therein.

The book is intended for biochemists, physiologists, specialists in age-related biology, and physicians. It can be used by graduate students and by students taking advanced courses in the aforementioned specialties.

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PALLADIN, A. V., et al., Belki golovnogo mozga i ikh obmen, 1972, 316 pp

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UDC 591.445

PALLADIN, A. V., and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy (Fifth All-Union Conference on the Neurochemistry of the Nervous System), Held in Tbilisi in September 1968, Tbilisi, "Metsniyereba," 1970, pp 11-21

BERITASHVILI, I. S., Institute of Physiology, Academy of Sciences Georgian SSR, Tbilisi

"The Neuronal and Biochemical Organization of the Nervous Substrate of the Memory in the Cerebral Cortex"

Abstract: A substantiated schema concerning the participation of different structural ensembles in the cellular system of the cerebral cortex in memory manifestations is given. Utilizing the investigations of memory with relation to food objects as an example, data with regard to the significance of stimuli (visual, taste, audio, and others) in the creation of images, their preservation, and their reproduction in the central nervous system were obtained.
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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

BERITASHVILI, I. S., "The Neuronal and Biochemical Organization of the Nervous Substrate of the Memory in the Cerebral Cortex"

The significance of the reverberation of stimuli in the neuronal circles in the case of short-range memory and those changes in the chemistry of the nervous cells which must form the basis for long-term memory is explained.

The possibility of reproducing the image of food location is based on molecular and submolecular changes in the associated pyramidal cells, their synaptic terminals, and post-synaptic membranes. These changes are conditioned by the action of mediators and electrical impulses.

The basis of the molecular mechanism of memory is the synthesis of an active protein induced by sensory impulses. This process is linked with the function of the genetic mechanism, that is, the triad: DNA -- RNA -- protein. Simultaneously, a nonspecific active protein is synthesized. The nature of the

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

BERITASHVILI, I. S., "The Neuronal and Biochemical Organization of the Nervous Substrate of the Memory in the Cerebral Cortex"

active protein's action is determined by the area of its action, that is, the condition of the postsynaptic section. The condition of the postsynaptic section is determined by the action of the mediator.

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UDC 577.15

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

SEVERIN, S. Ye., Chair of Animal Biochemistry, Moscow State University, Moscow

"Molecular Foundations of Regulation of Enzymatic Processes," pp 22-38

Abstract: The different and highly diverse ways and mechanisms of regulating enzymatic activity are examined. They are linked with the distribution of enzymes, coenzymes, substrates, and inhibitors in the different cellular organelles and the possibility of interaction, due to the different influences exerted on the membranes and their permeability. With contact between all of the participants in catalysis factors modifying the conformation of enzymes regulate the rate of enzymatic processes. These factors may evoke the association of enzymes into aggregates or their dissociation into subunits, change the

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
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SEVERIN, S. Ye., "Molecular Foundations of Regulation of Enzymatic Processes," pp 22-38

structure of their active center or the configuration of their allosteric sectors; they may hasten or suppress the synthesis of coenzymes, and thereby affect enzymatic activity. Natural compounds, intermediate products of metabolism, mediators and metabolites, and artificially synthesized compounds close in structure to coenzymes or imitating substrate structures may have a pronounced effect on the rate and direction of enzymatic processes.

The effect of highly diverse factors which are often hard to distinguish, together determine the activity of individual enzymes as well as complex combinations of enzymes. This method creates conditions for the orderly and regulated course of metabolic reactions comprising the chemical foundation for vital processes.

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USSR UDC 612.822.1+612.8.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

KOGAN, A. B., Chair of Physiology, Rostov University, Rostovna Donu

"Neurochemical Organization of Excitation and Inhibition Processes," pp 39-51

Translation: The neurochemical organization of excitation and inhibition processes at systemic and cellular levels under conditions of set and continuously controlled functional condition of the nervous elements was investigated with using a complex method combining electrophysiological, biochemical, and histochemical criteria. Systemic processes of conditioned excitation and conditioned inhibition are accompanied by the activation of plastic (direct indexes of the dynamics of ribonucleotides) and energetic (indirect indexes of ammonia formation) components of metabolism. In this case inhibition is found to be more active

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

KOGAN, A. B., "Neurochemical Organization of Excitation and Inhibition Processes," pp 39-51

in its metabolic manifestation than is excitation. This relationship between excitation and inhibition was confirmed also in the metabolism of an isolated nerve cell according to the histochemical indexes of the reaction of ribonucleotides and cytochromoxidase obtained in the micropolarographic determination of oxygen pressure. The differences between the exciting and inhibiting organization of the metabolism of a nerve cell were manifested, first of all, in the redistribution of metabolic gradients along the axondendrite axis. Thus, according to the histochemical determination of ribonucleotides and certain enzymes and also the measurement of concentrations of phosphorus, sulfur, calcium, and other elements with an electronic probe, their maximum redistribution from the dendrite to the axon zone

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
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of the cell during excitation and reverse distribution during inhibition have been established. A deeper analysis of the subcellular structural-metabolic processes indicated that an excited or inhibited condition of the nerve cell is characterized by different forms of reorganization of metabolic processes in the microstructures of the neuroplasm, for instance, by different configuration of the mosaic of foci of enzymatic activity or by other levels of order in the microstructural elements of the cytoplasmatic system.
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USSR

UDC 577.12

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

KAFIANI, K. A., Institute of Molecular Biology, Academy of Sciences USSR, Moscow

"Macromolecular Syntheses and the Memory Mechanism," pp 52-70

Abstract: A point of view rejecting the possibility of coding experience information in specific molecular structures is evolving: the specifics of memory inherent in the nervous system are regarded not as a characteristic of molecular mechanisms of the nerve cell, but as special features of the histological and cytological organization of the brain. The schema of formation of a plastic memory trace by means of activating the synthesis of normal functional neuron proteins by intensified excitation of the neurons in accordance with the feedback mechanism is examined. This connection is realized by activating
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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
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KAFIANI, K. A., "Macromolecular Syntheses and the Memory Mechanism," pp 52-70

the synthesis of ribonucleic acid and proteins by means of changing the ionic composition of the intracellular medium under functional conditions of the nerve cell. A special role is played by the activating effect of ammonia ions accumulating in the tissue as a result of the increase of ammonia products under the influence of an increased functional load. Because of the lability of ribonucleic acid and proteins, the preservation of the pathway for considerable periods of time requires their resynthesis, necessitating the repeated excitation of the corresponding nerve networks. A model of the mechanism of coding the surface of heurons by formation on them of a mosaic of synapses with different morphofunctional criteria related to each of the functional loads applied has been proposed.
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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

KOMETIANI, P. A., KLEYN, Ye. E., GOTSIRIDZE, Ye. G. and ALEKSIDZE, N. G., Department of Biochemistry, Institute of Physiology, Academy of Sciences Georgian SSR, Tbilisi

"Brain Proteins Sensitive to Memory Inhibitors, and Proteins Containing Metabolically Active Nitrogen," pp 87-102

Abstract: On the basis of the premise that inhibitors of protein synthesis simultaneously exert a negative effect on learning and memory, it became necessary to determine the relationship of memory disturbance with inhibited resynthesis of proteins. The experimental animals were intracranially injected with 8-azaguanine, puromycin, actinomycin-D, and chloramphenicol. After maximum inhibition of synthesis was attained, the animals were decapitated, the brain excised, and the proteins separated by two-dimensional fractionation
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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

KOMETIANI, P. A. et al., "Brain Proteins Sensitive to Memory Inhibitors, and Proteins Containing Metabolically Active Nitrogen," pp 87-102

(chromatography on a column of Sephadex, and electrophoresis on starch gel). It was found that one of the terminal fractions of the cathode proteins was inhibited first. The greater sensitivity of cathode proteins to synthesis inhibitors is apparently explained by their more rapid restoration, and possibly has no direct connection with memory manifestations. As a consequence of the incubation of brain tissue homogenate and the tiring of animals (rats) by electric excitation, the distribution of separate protein fractions changed. Experimental data indicate that the reason for the probable changes should be sought not only in shifts in the rate of synthesis, but also in the dimensional changes of protein molecules and the degree of their amidation. Data on the fractionation of

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isolated neuronal and neuroglial cell proteins are cited; differences in protein composition are also indicated. A study of the composition of neuronal proteins obtained from various areas (nuclei) of the brain permits the conclusion that neurons differ from each other by the distribution and composition of their proteins. In another series of experiments, study of the participation of the amide nitrogen of proteins in ammonia formation and in amino acid metabolism was undertaken. It was established that the amine nitrogen of amino acids is utilized in the amidation of proteins. It was established also that the protein fraction soluble in acidified organic solvents is highly active in amide nitrogen metabolism.
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UDC 576.311; 611.018; 612.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

BRODSKIY, V. Ya., Institute of Developmental Biology, Academy of Sciences USSR, Moscww

"Possible Mechanisms of Regeneration of Neuronal Protoplasm," pp 114-128

Abstract: Possible methods of restoring the structure and activity of a nerve cell in ontogenesis, linked with the functional adaptations of protein synthesis, are discussed in a review of the literature and the author's own cytochemical data. The basic data confirm: 1. intensified disintegration of proteins during prolonged excitation of cells; 2. the dependence of the intensity of protein synthesis on excitation; 3. the presence of a rhythm in the quantitative changes of proteins (ganglionic retina cells, for instance); 4. development of rhythm in ontogenesis, and the possibility of changing its parameters 14/33

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BRODSKIY, V. Ya., "Possible Mechanisms of Regeneration of Neuronal Protoplasm," pp 114-128

in an experiment; 5. the connection between the rhythm of the quantitative protein changes and specific neuron activity; 6. the effect of cellular activity on the postnatal development of cells. It is assumed, as a result, that the intensive formation of new proteins in the different nerve cells is primarily due to resynthesis of their protoplasm and restoration of cellular activity. The correlation of this process with the development and specific activity of the neuron contributes to the prolongation of its vital functions.
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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

PEVZNER, L. Z., Laboratory of Functional Neurochemistry, Institute of Physiology, Academy of Sciences USSR, Leningrad

"Quantitative Changes of Nucleic Acids and Proteins in Neurons and Glia Induced by Shifts in the Functional Condition of the Central Nervous System," pp 129-146

Abstract: The quantitative content of RNA and protein in neurons and the surrounding glial cell-satellites of different sections of the nervous system under different functional conditions of the nervous system was determined with the use of ultraviolet and visual cytospectrophotometry. It was found that when sharp shifts occur in the functional condition of the nervous system, RNA and protein metabolism in the glial cell satellites may undergo marked shifts directed in the same manner as changes in the metabolism of nerve cells. When the shifts in the condition

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PEVZNER, L. Z., "Quantitative Changes of Nucleic Acids and Proteins in Neurons and Glia Induced by Shifts in the Functional Condition of the Central Nervous System," pp 129-146

of the nervous system are less pronounced, the glial metabolism is characterized by greater stability than that of the neuron metabolism. The termination of the influence by the factor w which induces the metabolic shifts in the neurons and glia is accompanied by restoration of the RNA and protein levels to normal, first in the glia and then in the neurons. With the restoration of metabolism in the glia and neurons to its normal level, remote and delayed shifts in the metabolism of the glial cells may develop. It was concluded that these shifts reflect the dominating participation of the glia in the mechanism of cellular adaptation. As a whole, there is no doubt that the neuroglia play a leading role in the homeostatic mechanisms of nervous tissue.

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GAYEVSKAYA, M. S., NOSOVA, Ye. A. and SLEZ, L. M., Institute of Medical and Biological Problems, Ministry of Health USSR, Moscow

"Nitrogen and Energy Metabolism in the Brain Under the Influence of Reduced Vital Activity of the Organism," pp 194-208

Abstract: Chilling of rats to a temperature of 20-18°C on a background of depressed thermoregulation by a lytic mixture caused an increase in the brain tissue content of glucose and creatine phosphate, and some increase in the quantity of urea. At the same time, the brain content of lactic and pyruvic acids (nonoxidized products of metabolism) decreased. The linking of oxidation and phosphorylation processes increased in the brain tissue of the chilled animals. The prolongation of the hypobiotic state to a period of 24 hours on a background of a total retardation of metabolic processes in brain tissue was
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accompanied by restoration to normal content of a number of components of nitrogen and carbohydrate metabolism on the one hand, and the development of symptoms of metabolic discoordination, manifested by the accumulation of lactic acid, inorganic phosphorus, and a considerable quantity of urea. During the warming period following prolonged hypobiosis, no essential disturbances of carbohydrate-phosphorus and nitrogen metabolism were noted; an exception was the elevated concentration of urea in the brain tissue. A temporary metabolic disturbance manifested by the excessive accumulation of glutamine and glycogen in the brain tissue characterized the posthypothermal period. Changes in the structure of brain tissues characterized by a

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GAYEVSKAYA, M. S., et al., "Nitrogen and Energy Metabolism in the Brain Under the Influence of Reduced Vital Activity of the Organism," pp 194-208

decrease in the degree of their amidation and a sharp decrease in the quantity of urea continued for a period of two subsequent weeks.

The data obtained permit the conclusion that the metabolic shifts taking place in homothermal animals in a state of artificial hypobiosis for a period of 24 hours are of an adaptive character.

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USSR UDC 577.12+577.3

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

CHERKASOVA, L. S., Institute of Physiology, Academy of Sciences Belorussian SSR, Minsk

"Nitrogen and Carbohydrate Metabolism in the Brain Under the Influence of Relatively Small Doses of Ionizing Radiation," pp 232-246

Abstract: Shifts in the carbohydrate and nitrogen metabolism in brain tissue have been disclosed. These shifts point to the important role which a nonspecific component plays in the development of the central nervous system's reaction to x-ray and neutron irradiation administered in a relatively small dose (along with specific manifestations of the effect of irradiation on biological structures and biopolymers of the organism). The component in this case is the hypothalamus-hypophysis-adrenal system, which determines the further course of development of the pathological process, adaptation, and compensation of the induced injuries.
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USSR UDC 577.1:547.953:612.8.015

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

CHETVERIKOV, D. A., GASTEVA, S. V., DVORKIN, V. Ya., SHMELEV, A. A., and BOBKOV, V. A., Institute of Physiology imeni Pavlov, Academy of Sciences USSR, Leningrad

"Phospholipid Metabolism in Different parts of the Central Nervous System in Hypoxia," pp 274-284

Abstract: The content and intensity of metabolism of phosphate groups of individual phospholipid fractions in the cortex of the cerebral hemispheres, cerebellum, mesencaphalon, medulla oblongata, and spinal cord of rats were studied during acute hypoxia. Hypoxia was induced by placing the animals in a pressure chamber with a pressure of 180 ml Ag for a period of two hours. It was found that despite the well-known morphological and physiological data on the sensitivity of the various parts of the central nervous system to oxygen insufficiency, the extent of metabolic depression in each of the studied

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

CHETVERIKOV, D. A., et al., "Phospholipid Metabolism in Different Parts of the Central Nervous System in Hypoxia," pp 274-284

phospholipid fractions during acute hypoxia was approximately the same in all sections of the central nervous system. It is assumed that such uniformity in the quantitative expression of reaction to hypoxia by phospholipids localized in different parts of the central nervous system may be due to the uniformity in the extent of temperature drop in the different parts of the central nervous system during hypoxia. Earlier the authors indicated that the metabolic depression of phospholipids in the brain tissue of rats during oxygen insufficiency is due to hypoxic hypothermia, which develops in rats during a stay in a pressure chamber with reduced barometric pressure.

23/33

USSR

UDC 577.158

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

ROZENGART, V. N., First Medical Institute imeni Pavlov, Leningrad

"Some Characteristics of the Structure of the Active Surface of Cholinesterase," pp 332-344

Abstract: The sensitivity of cholinesterase of equine blood serum and acetylcholinesterase of bovine erythrocytes to a homologous series of organophosphorus inhibitors, derivatives of O-alkyl-methylthiophosphonates was studied. The thioalkyl radical inhibitor was either ethylmercaptoethyl, its methylsulfomethylate, a normal butyl, or normal hexyl. The organophosphorus inhibitor in each of the series studied may be regarded as practically identical with respect to the strength of the phosphorylating reagents (equation of rK values corresponds to that of thiophosphonic acids), while their different anticholinesterase

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PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

CHETVERIKOV, D. A., et al., "Phospholipid Metabolism in Different Parts of the Central Nervous System in Hypoxia," pp 274-284

effectiveness is the result of the difference in the degree of conformity of their alkyl radicals with the hydrophobic section in the area of the esterase center of the catalytic surface of cholinesterase and acetylcholinesterase. There are two hydrophobic sections separated by a hydrophilic group in the case of cholinesterase. Their total expanse corresponds to that of the radical C_7. There is only one hydrophobic section complementary to the isohexyl radical in the case of acetylcholinesterase.

25/33

USSR

UDC 591.185.3

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

TURPAYEV, T. M. and MANUKHIN, B. N., Institute of Developmental Biology, Academy of Sciences USSR, Moscow

"The Identity of Cholino- and Adrenoreceptor Proteins," pp 345-354

Abstract: Experimental confirmation of the earlier assumptions with regard to the identityof cholino- and adrenoreceptor proteins are cited in the article. Topics studied were the interaction between adreno- and cholinoreceptors and the effect of factors denaturing the protein molecule on the activity of the cholino- and adrenoreceptors. The kinetic method was used to evaluate the functional condition of the cholino- and adrenoreceptors. Experiments on the ventricle of a frog showed that acetylcholine and adrenalin have a depressing effect on the receptors of the antagonistic system. At the same time it was found that the inhibiting action of acetylcholine on the
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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

TURPAYEV, T. M. and MANUKHIN, B. N., "The Identity of Cholino- and Adrenoreceptor Proteins," pp 345-354

adrenoreceptors is higher than its activating effect on the cholinoreceptors. In the temperature range of 3 to 30°C the value of K, which characterizes the relationship between the specific receptors and acetylcholine and adrenalin undergo an identical change. In the course of brief heating of the ventricle to a temperature of 40°C a reversible inactivation of the cholino- and adrenoreceptors takes place. The subsequent restoration of the receptors' activity to the initial level occurs simultaneously. A short-period treatment of the ventricle with a 15% solution of urea also induces a reversible inactivation of both receptors; the rate at which their activity is restored after the urea is washed off is identical.

27/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

TURPAYEV, T. M. and MANUKHIN, B. N., "The Identity of Cholino- and Adrenoreceptor Proteins," pp 345-354

It was concluded that the cholino- and adrenoreceptors are a single protein molecule with two active centers: one which interacts with acetylcholine, and the other with catecholamine. These active centers are reciprocally linked apparently at the level of single receptor protein -- the excitation of one causes the inhibition of the other.

28/33

USSR

UDC 577.155.3

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GORKIN, V. Z., AKOPYAN, Zh. I., VEREVKINA, I. V., MOSKVITINA, T. A., and STESINA, L. N., Laboratory of Amines and Other Nitrogenous Bases, Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow

"Enzymatic Mechanisms of Deamination of Biogenic Amines," pp 382-392

Abstract: When hepatic mitochondria are treated in the presence of serotonin with oxidized oleic acid, changes in the substrate specificity and sensitivity to the inhibiting action of mitochondrial monoaminooxidase (MAO) are noted. These changes were first called "transformation" of MAO into an enzyme resembling diaminooxidase. The indicated process, according to data cited in this report, is partially reversible. It is based, apparently, on the oxidation of the thiol groups situated

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GORKIN, V. Z., et al., "Enzymatic Mechanisms of Deamination of Biogenic Amines," pp 382-392

outside of the active MAO center to disulfides. The mitochondria treated with oxidized oleic acid acquire the ability to deaminate a whole series of nitrogenous compounds (including along with amines and omega-amino-acids also adenosine-5'-monophosphate and urea).

30/33

USSR UDC 576.343

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GLEBOV, R. N., Scientific Research Institute of Physics Problems, Moscow

"Biochemical Aspects of Synaptic Membrane Function," pp 452-463

Abstract: Literature data concerning the biochemical composition of the different subunits of the nerve terminals (synaptosomes), and the structure and function of pre- and postsynaptic membranes are discussed in the article. Ion-mediator regulation in the synaptosomes and the effect of mediators on the biosynthesis of ribonucleic acid in the synaptic membranes were selected for the initial stages of study of the synaptic membrane function. By measuring electroconductivity, it was established that acetylcholine evokes a reversal in binding by synaptosomes from the brain of rats in a number of Na^+, K^+, Ca^{++}, and Mg^{++}
31/33

USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyrokhimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GLEBOV, R. N., "Biochemical Aspects of Synaptic Membrane Function," pp 452-463

ions as compared with controls (absence of acetylcholine). Synaptosomes in the presence of acetylcholine increase the binding of Na^+ and Mg^{+2} ions and reduce binding of K^+ and Ca^{++} ions. It was found also that acetylcholinesterase activity of the synaptosomes depends on the concentration of Na^+ and K^+ ions as well as on the concentration of acetylcholine. At a low concentration of acetylcholine (10^{-3}M) the activating effect of the ions is as follows: $K^+ \geq Na^+$. At a high concentration of acetylcholine (10^{-2}M) the order is reversed. Ribonucleic acid biosynthesis in the synaptosomes was studied in vitro with the inclusion of C^{14} -- orotic acid. It was found that acetylcholine has a stimulating effect (100% activation) on the inclusion of the tracer only in the synaptosomes

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USSR

PALLADIN, A. V. and KOMETIANI, P. A. (Editors)
Pyataya Vsesoyuznaya Konferentsiya po Neyroknimii Nervnoy Sistemy, "Metsniyereba," 1970, pp 11-21

GLEBOV, R. N., "Biochemical Aspects of Synaptic Membrane Function," pp 452-463

(but not in the mitochondria). This effect of acetylcholine is highly specific: choline chloride, sodium acetate, butyryl choline bromide had no stimulating effect. Co-factors of the effect of acetylcholine were ions $K^+ \geq Na^+$ (0.1 M), adenosine triphosphate, and a crude cholinoreceptor fraction isolated from the brain of rats by the modified Turpayev method. Adrenalin stimulated the inclusion of orotic acid only into the fraction of pure mitochondria. These facts indicate the usefulness of the hypothesis concerning the autonomous synthesis of protein in the nucleic acids of the nerve terminals.
33/33

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CSO: 1840-W

- END -

- 115 -

Acc. Nr: AA0108719 Abstracting Service: 3-70 Ref. Code: UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243755 WELDING MACHINE FOR STRAIGHT T-BEAMS has welding heads, positioning rollers and driving rollers all mounted on a beam which can be pivoted in the vertical plane. This imparts a bending stress to the T-beam being welded, so counteracting the opposite stress due to welding.

30.3.67 as 1145211/25-27. M.I.SHALYAPIN, S.N.ADAMENKO & A.M. PALLER et al. (3.10.69) Bul 17/14.5.69. Class 21h. Int.Cl. B 23k.

AUTHORS: Shalyapin, M. I.; Adamenko, S. N.; Paller, A. M.; Kaprantsev, I. G.

18

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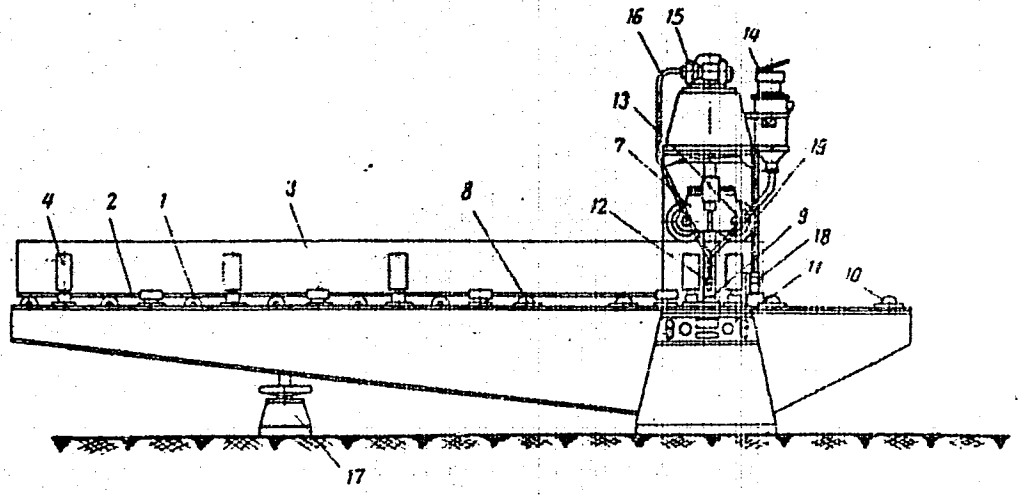
REEL/FRAME
19900492

AA0108719



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13 S

19900493

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ADSORPTION OF PHENOL ON A BISMUTH ELECTRODE -U-

AUTHOR-(02)-ALUMAA, A.R., PALM, U.V.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA, APR. 1970, 6, (4), 580-583

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, PHENOL, BISMUTH, METAL ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1284 STEP NO--UR/0364/70/006/004/0580/0583

CIRC ACCESSION NO--AP0134958

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADSORPTION OF C SUB6 H SUB5 OH ON THE SURFACE OF A BI ELECTRODE WAS STUDIED BY A METHOD BASED ON MEASURING THE DIFFERENTIAL CAPACITY OF THE LATTER AS A FUNCTION OF APPLIED POTENTIAL. THE FACT THAT THE EXPERIMENTAL DIFFERENTIAL CAPACITY CURVES AGREED CLOSELY WITH THOSE CALCULATED THEORETICALLY, TOGETHER WITH THE OBSERVED FORM OF THE COVERAGE FACTOR-POTENTIAL CHARACTERISTIC, CONSTITUTED AN ARGUMENT IN FAVOUR OF THE FRUMKIN-DAMASKIN THEORY (ZHUR. FIZ. KHIM., 1963, 37, 2483) FOR EXPLAINING THE ADSORPTION OF C SUB6 H SUB5 OH ON BI.

UNCLASSIFIED

USSR

UDC 591.488.4-135.044:597.82

VINNIKOV, Ya. A., GAZENKO, O. G., TITOVA, L. K., GOVARDOVSKIY, V. I., GRIBAKIN, F. G., BRONSHTEYN, A. A., PEVZNER, R. A., ARONOVA, M. Z., MASHINSKIY, A. L., PAL'MBAKH, L. R., IVANOV, V. P., TSIRULIS, T. P., KHARKEYEVICH, T. A., and PYATKINA, G. A., Laboratory of Evolutional Morphology, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Development of the Vestibular Apparatus (Labyrinth) of the Frog Rana temporaria in Weightlessness"

Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3, May/Jun 72, pp 343-350

Abstract: To study the effect of weightlessness on development of vertebrate vestibular apparatus, 43-hour artificially fertilized Rana temporaria eggs were subjected to a 40-hour flight in the Soyuz-10, after which they were fixed and observed with an electron microscope. Embryos in the early gastrula stage were used to ensure that takeoff acceleration was experienced prior to establishment of definitive vestibular apparatus, in light of evidence that acceleration does have considerable impact on receptor cell development at the later stages. Normal development proceeded to the tail bud stage during

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202320013-6"

(10)

USSR

VINNIKOV, Ya. A., et al., Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Vol 8, No 3, May/Jun 72, pp 343-350

the flight, as it did in control embryos, and no differences were detected in development of the presumptive otocysts and the eighth ganglion. Morphology is described in detail, the main feature being the beginning of differentiation of receptor and support cells in the presumptive otocysts and of bipolar neuroblasts in the eighth ganglion. Thus weightlessness has no effect on development in general and on differentiation of the future vestibular apparatus in frog embryos.

2/2

PALMIN, V.

Biophysics

TECHNICAL TRANSLATION

FSTC-HT-23-553-71

ENGLISH TITLE: Investigation and Perspectives of the Application of Radiation Treatment of Meat Products

FOREIGN TITLE: Nekotoryye Rezul'taty Issledovaniya i Perspektivy Primeneniya Radiatsionnoj Obrabotki Myasnykh Produktov

UC

AUTHOR: V. Palmin

SOURCE: Myasnaya Industriya, Vol 41, No. 5, May 1970, pp 40-41.

Translated for FSTC by ACSI

NOTICE

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--PROTEASES OF LEUKOCYTES -U-

AUTHOR-(02)-PALMIN, V.V., SINITSINA, V.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. YSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (1), 29-31

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LEUKOCYTE, FREEZING, THAWING, PROTEOLYTIC ENZYME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1178 STEP NO--UR/0322/70/000/001/0029/0031

CIRC ACCESSION NO--AP0126780

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0126780
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOVINE ERYTHROCYTES WERE DESTROYED BY DECREASING THE OSMOTIC PRESSURE. LEUKOCYTES WERE WASHED AND HB REMOVED. ISOLATED LEUKOCYTES WERE DISINTERGRATED BY REPEATED FREEZING AND THAWING. WATER SOL. (PH OPTIMUM 4-5) AND NACL SOL. (PH OPTIMUM 7-8) ENZYME FRACTIONS WERE EXTD. AND THEIR PROTEOLYTIC ACTIVITY WAS DETD. THE ACTIVITY OF THE NACL SOL. ENZYME WAS CONSIDERABLY HIGHER. TO CHARACTERIZE THE ENZYME THE EFFECT TO ACTIVATORS (0.04M NA SUB2 S SUB2 O SUB3, 0.04M NA SUB2 S, GLUTATHIONE, CYSTEINE) AND INHIBITORS (0.04M IODOACETAMIDE) WAS STUDIED. IT WAS CONCLUDED THAT THE ENZYMES CONTAIN SH GROUPS IN THE ACTIVE CENTERS. FACILITY: MOSK. TEKHNOL. INST. MYAS. MOLOCH. PROM., MOSCOW, USSR.

UNCLASSIFIED

PAL'MINA, S. I.

JPRS 56030
18 May 72

UDC 615.849.1.015.46

STATE OF NATURAL IMMUNITY OF DOGS DURING CHRONIC GAMMA IRRADIATION UNDER THE INFLUENCE OF AMITETRAVITE

[Article by S. I. Pal'mina, V. A. Zuyeva, N. I. Gvozdeva, M. F. Shitneva, A. A. Akhunov and E. S. Zubenkova; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 2, March-April 1972, pp 24-29, submitted for publication 11 February 1971]

Abstract: The effect of amitetravite, a biological protectant, on the state of natural immunity was investigated in experiments on dogs exposed to three-year chronic gamma irradiation simulating the dose characteristics of a space-flight environment. Long-term irradiation of dogs with low Co^{60} gamma ray dosages induced wavelike changes in the natural immunity of the test animals. Regular administration of amitetravite produced a normalizing effect on the state of skin autoflora, favored a relative stability of the indices of blood phagocytic activity, and restrained the development of autoimmune reactions.

It has been established in numerous investigations that body exposure to ionizing radiation in large doses, leading to the development of acute or subacute radiation sickness, is accompanied by an impairment of many body functions. Among these impairments a leading place is occupied by a decrease in natural and artificial immunity (P. N. Kiselev and P. A. Buzini; N. N. Klemparskaya, et al.; V. M. Shilov; R. V. Petrov, and others). However, the problem of the effect of prolonged chronic irradiation in small doses on immunobiological reactivity and the influence exerted on it by protective-therapeutic measures has not been adequately covered.

The objective of this study was an evaluation of the effectiveness of one of the means of biological defense, the drug amitetravite, on the state of natural immunity in dogs subjected to prolonged chronic gamma irradiation. This study is a part of a complex investigation with chronic irradiation which in dose level and intensity simulated the radiation conditions of a prolonged space flight (Yu. G. Grigor'yev and B. A. Markelov, and others).

1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--AXISYMMETRIC DEFORMATION OF A PLATE MADE OF AN ELASTOPLASTIC MATERIAL CAPABLE OF HARDENING -U-
AUTHOR-(02)-ZVEREV, O.A., PALMOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA TVERDOGO TELA, MAR.-APR. 1970. P. 178-181. 7
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--THIN PLATE, BIBLIOGRAPHY, FLAT PLATE, PLASTICITY, ELASTICITY, METAL HARDENING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0350 STEP NO--UR/0484/70/000/000/0178/0181

CIRC ACCESSION NO--AP0124107

2/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROCEDURE FOR SOLVING THE PLANE AXISYMMETRIC ELASTOPLASTIC PROBLEM OF A PLATE UNDER UNIFORM LOAD. THE PLATE IS MADE OF A COMPRESSIBLE MATERIAL WITH AN ARBITRARY LAW OF HARDENING. THE PROBLEM IS SOLVED IN QUADRATURES BY USING CONVENTIONAL EQUATIONS OF ELASTOPLASTIC DEFORMATION. THE PROCEDURE IS APPLIED TO AN INFINITE PLATE WITH A LINEAR LAW OF HARDENING.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF CARBOHYDRATES ON THE GROWTH, DEVELOPMENT, AND SPOROGENESIS OF VARIOUS STRAINS OF TRICHOTHECIUM ROSEUM -U-

AUTHOR-(02)-PALMOVA, N.P., MAKSIMOVA, R.A.

COUNTRY OF INFO--USSR

SOURCE--BIOL. NAUKI 1970, (2), 82-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FUNGUS, MICROORGANISM, CONTINUOUS CULTURE, CULTURE MEDIUM, CARBOHYDRATE METABOLISM, ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0620 STEP NO--UR/0325/70/000/002/0082/0087

CIRC ACCESSION NO--AP0117846

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117846

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF VARIOUS CARBOHYDRATES WERE STUDIED ON SPORE FORMATION AND THE LIFE CYCLE OF 16 T. ROSEUM STRAINS DIVIDED INTO 4 MORPHOL. GROUPS ACCORDING TO THE GROWTH CHARACTERISTICS ON AGAR NUTRIENT MEDIUM AND THE LEVEL OF ANTIBIOTIC FORMATION. STRAINS WERE ISOLATED FROM NATURAL SUBSTRATES AND OBTAINED DURING NITROSOMETHYLUREA AND TRICHOTECHIN INDUCED MUTATIONS. GLUCOSE WAS THE MOST FAVORABLE STIMULATOR OF GROWTH, DEVELOPMENT, AND SPOROGENESIS FOR STRAINS IN ALL MORPHOL. GROUPS, AND FACILITATED INTENSIVE GROWTH OF CONIDIUM AND MYCELIUM, EARLY AND ABUNDANT FORMATION OF MACROCONIDIUM, AND ANTIBIOTIC ACTIVITY. SUCROSE, GLYCEROL, MANNITOL, AND STARCH PROLONGED THE VEGETATIVE GROWTH PHASE. RHAMNOSE STIMULATED DEVELOPMENT OF VEGETATIVE MYCELIA AND INHIBITED SPOROGENESIS, WHILE LACTOSE INHIBITED MYCELIAL GROWTH, MACROSPOROGENESIS, AND ANTIBIOTIC FORMATION. FACILITY: LAB. ANTIBIOT., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC (546.821+546.883):543.062

PAL'NIKOVA, T. I., DOLGOREV, A. V., and GRIBOVA, L. I., Berezniknovsk Branch of the All-Union Scientific Research and Design Institute of the Aluminum, Magnesium, and Electrode Industry

"Method of Quantitative Discrimination and Subsequent Determination of Titanium and Tantalum in Niobium Products"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1045-1047

Abstract: The authors have studied the conditions for discrimination and determination of titanium and tantalum in technical niobium hydroxide. They developed a method of separating titanium from several solutions by using chloroform to extract its complex with stannic chloride and other solutions. The extract produced is suitable for the quanti-

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PAL'NIKOVA, T. I., et al., Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1045-1047

tative determination of titanium. Conditions were developed for the spectrophotometric determination of tantalum in an oxalate solution after separation of the titanium. The accuracy of the method for 0.5-2.5% TiO_2 is 10.5-2% and for 1.5-7% Ta_2O_5 it is 3-8%.

Figure 1 shows the dependence of optical density of chloroform extracts on concentration of tartaric acid and ammonium oxalate. Figure 2 illustrates the spectrophotometric characteristics of aqueous solutions. The table illustrates determination of Ta_2O_5 and TiO_2 in technical niobium hydroxide.

The article contains 2 illustrations and 1 table.

2/2

PALOS, L.A.

physician training

UDC 612.115.3.016...

BIOLOGICAL ROLE OF ATMOSPHERIC OXYGEN IN THE BLOOD COAGULATION MECHANISM

[Article by L. A. Palos, Institute for the Advanced Training of Physicians, Budapest, ~~Hungarian People~~'s Republic; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 5, September-October 1972, pp 8-13, submitted for publication 22 October 1971]

The role of atmospheric oxygen in energy metabolism has long been known. The important role of atmospheric oxygen in regulating numerous physiological processes was established considerably later. This became particularly obvious in our day, when man, in making space flights, departs from his accustomed biosphere to which he has become adapted over the course of millions of years. One of the most important factors in adaptation is the vital need for oxygen, which in contrast to earlier opinions plays a varied physiological role.

In 1949 we first pointed out the functional unity of the respiratory, circulatory and blood coagulation systems (Palos, 1948a, 1949b, 1949, 1949a, 1954; Palos and Komaromy). Our later experiments, carried out using more modern methods, confirmed the important role of the mentioned functional relationships.

In order to clarify the biological role of atmospheric oxygen we carried out several series of experiments for studying redox processes in vitro and in vivo and investigating the processes of biological regulation and functional unity of the respiratory, circulatory and blood coagulation systems.

It was established in experiments in vitro that under the influence of oxygen thrombin is inactivated, whereas prothrombin exhibits a considerable resistance to it (Palos, 1949a). As demonstrated by later investigations (Carter and Warner; Palos, 1959) this resistance can explain its activity in an oxidized form, since its molecule contains four -S-S-groups. If the disulfide groups are reduced by cysteine, the prothrombin loses its activity. The results of our model experiments, conducted with methylene blue and a number of blood coagulation factors (Palos, 1960), are in complete conformity with these data.

JPRS 57517
15 Nov 72

1/2 041 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--OPTICAL CHARGE EXCHANGE AND THERMAL STIMULATION EFFECT IN GAAS WITH FE -U-

AUTHOR-(04)-CMELYANCVSKIY, E.M., PALOV, N.M., SOLOVYER, N.N., SOLOVER, N.N.

CCUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, MAR, 1970, P. 527-532

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL OPTIC PROPERTY, OPTIC PROPERTY, CHARGE EXCHANGE, THERMAL EFFECT, SIMULATION, IRON IMPURITY, GALLIUM ARSENIDE, ELECTRON PARAMAGNETIC RESONANCE, ELECTRON TRIPLET STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1855 STEP NO--UR/0449/70/004/000/0527/0532

CIRC ACCESSION NO--AP0116819

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0118819

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF EXPERIMENTS IN WHICH OPTICAL CHARGE EXCHANGE AND THERMAL STIMULATION EFFECTS WERE OBSERVED IN IRON DOPED GALLIUM ARSENIDE CRYSTALS. THE ROLE OF THE IRON CONTENT IN THESE PROCESSES IS DETERMINED BY APPLYING THE EPR METHOD TO THE STUDY OF THE SPECTRA OF TRIPLY CHARGE IRON IONS. AN INVESTIGATION OF THE PROPERTIES OF GALLIUM ARSENIDE DOPED WITH VARIOUS AMOUNTS OF IRON SHOWED THAT THE POSSIBILITY OF OBSERVING THERMAL STIMULATION EFFECTS ASSOCIATED WITH THE CHARGE EXCHANGE OF THE IRON LEVEL IS DETERMINED BY THE DEGREE OF COMPENSATION OF THE MATERIAL AND BY THE PRESENCE OF OTHER DEEP SEATED LEVELS. PARALLEL INVESTIGATIONS OF THERMALLY STIMULATED CURRENTS AND CHANGES IN IRON CONCENTRATION (TRIPLY CHARGED IRON IONS) FROM THE INTENSITY OF THE EPR SPECTRA REVEALED THE EXISTENCE OF AN 0.2 EV ACCEPTOR LEVEL IN THE CRYSTAL. THE EXPERIMENTAL DATA OBTAINED LEAD TO CERTAIN QUANTITATIVE ESTIMATES OF THE PARAMETERS OF DEEP LYING LEVELS IN GALLIUM ARSENIDE. FACILITY: GOSUDARSTVENNYI NAUCHNO-ISSLEDOVATEL'SKII I PROEKTNYI INSTITUT REDKOMETALLICHESKOI PROMYSHLENNOSTI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.372.061

PALSHKOV, V. V.

"Requirements on the Selectivity Characteristic of Radio Receivers for Known Signals"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference, Leningrad Electrotechnical Communications Institute. Vyp. 3), Leningrad, 1970, pp 147-151 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A119)

Translation: This article contains an investigation of the requirements on the selectivity of radio receivers from the point of view of optimal signal filtration. The requirements on the selectivity characteristic of receivers of known signals are formulated. The calculational formulas are presented.

1/1

USSR

UDC 621.396.62:621.391.84

PALSHKOV, V. V.

"Requirements Imposed on the Selectivity Characteristic of Radio Receivers for Unknown Signals"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 3), Leningrad, 1970, pp 152-157 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D6)

Translation: This article contains an investigation of the requirements imposed on the selectivity of receivers of unknown signals insuring the least mean square error in reproducing the signal. Calculational relations are presented.

1/1

USSR

UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., PALTARAK, N. M., SNAGOSHCHENKO, L. P., SUCHKOV, V. A.

"Generation and Tuning of the Radiation Bands of a Laser Based on Solutions of Certain Organic Compounds"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

Abstract: The generation of solutions of oxazole and oxadiazole solutions that differ in the type and position of substitutes and have one or two oxazole rings was studied. Generation of tetraphenylbutadiene and a solution of a coumarin mixture was also obtained. Compounds of these classes are activators of organic scintillators. They were effective active media for liquid lasers in the ultraviolet and blue regions of the spectrum. A table is given showing the name of the substances, the position and width of the strongest part of the generation bands, and the concentration of the solutions for which generation was obtained. Duration of fluorescence is given for the smallest concentrations (10^{-3} g/l) for which the monomer molecules fluoresce. The generation bands were tuned with a diffraction grating (1200 lines/mm) which concentrated 70% of the reflected light. The second mirror

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

of the resonator was a wide-band mirror. The use of a grid made it possible to narrow considerably and frequency tune the generation bands. For tetraphenylbutadiene with a generation band width of 16 nm, the range of smooth tuning of the generation frequency was 70 nm (480-550 nm). Of greatest interest was the tuning of generation bands of solutions of oxazole and oxadiazole derivatives, since their position was little dependent on experimental conditions in operating with a nonselective resonator.

2/2

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--LASING IN SOLUTIONS OF ORGANIC SCINTILLATORS -U-

AUTHOR-(04)-BORISEVICH, N.A., GRUZINSKIY, V.V., KUTSINA, L.M., PALTARAK, N.H.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 328-30

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--STIMULATED EMISSION, LASER EXCITATION, SCINTILLATOR, SOLUTION CONCENTRATION, LUMINESCENCE SPECTRUM, QUANTUM YIELD, CHEMICAL STABILITY, BENZENE COMPOUND, AZOLE, ORGANIC OXYGEN COMPOUND, DIPHENYLAMINE, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1458 STEP NO--UR/0368/70/012/002/0328/0330

CIRC ACCESSION NO--AP0118447

UNCLASSIFIED

2/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STIMULATED EMISSION OF 1,4,BIS(5,TOLYL,2,OXAZOLYL)BENZENE (I), 1,4,BIS(5,PHENYL,2,OXAZOLYL)BENZENE (II), 2,BIPHENYLYL,5,(1,NAPHTHYL)OXAZOLE (III), 2,(1,NAPHTHYL),5,PHENYLOXAZOLE (IV), AND P,DIMETHYLAMINO,2,5,DIPHENYLOXADIAZOLE (V) IN PHME, P,XYLENE, OR DITOLYLMETHANE WAS OBSD. IN TWO PHOTON EXCITATION BY A RUBY LASER. FLUORESCENCE SPECTRA, EMISSION HALF LIVES, QUANTUM YIELDS, AND PHOTOCHEM. STABILITY OF I-V ARE DISCUSSED. SHIFTS OF 0.5 AND 1.3 NM OF THE STIMULATED EMISSION MAX. OF II AND IV, RESP. DUE TO CONCN. CHANGE (2-3 FOLD) WERE OBSD.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202320013-6"

USSR

UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., KUTSINA, L. M, PALTARAK, N. M.

"Generation in Solutions of Organic Scintillators"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 12, No 2, Feb 1970, pp 328-330

Abstract: Derivatives of oxazole and oxadiazole are effective organic scintillators and have high fluorescence yields, little sensitivity to oxygen extinction, and other favorable properties for stimulated emission. Various substances with phenyl, diphenyl, and naphthyl radicals and oxazole and oxadiazole rings were tested in solution with toluol, n-xylol, and ditolylmethane. Excitation was provided by doubling the frequency of a ruby laser.

Contrary to other reports, a correlation is found between solution concentration and the position of the generation line. Line shifts were observed for 2(1'-naphthyl)5-phenyloxazole and 1,4-di-[2-(5-phenyloxazolyl)] benzene when their concentrations were increased; line narrowing was observed no n-dimethylamino-2,5-diphenylozadiazole with increase in concentration.

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 12, No 2, Feb 1970, pp 328-330

In some substances generation occurred at room temperature at several wavelengths, corresponding to vibration maxima of their fluorescence bands. The solutions tested can be operated as pulsed light-pumped lasers having low thresholds and high amplification factors. Such organic lasers can be used to generate emission in the ultraviolet region.

Orig. art. has 1 fig., 1 table, and 5 refs.

2/2

PALTEROVICH, D.

ECO

METALWORKING EQUIPMENT

INADEQUATE UTILIZATION OF INSTRUMENT CAPACITIES NOTED

[Article by D. Palterovich, USSR Academy of Sciences Economics Institute senior scientific assistant: "The Structure of Equipment"; Moscow, Pravda, 6 December 1971, p 2]

More and more different machines and mechanisms are required for the national economy with every passing year. Insofar as the satisfaction of the growing demand for new equipment is sometimes delayed because of a shortage of machine-building capacities, it is important to correctly determine the priorities for the development of new equipment and its introduction into production. Primarily it is necessary to design and produce those items which yield the greatest economic saving. How can this be done more rationally?

Calculations show the exceptionally high effectiveness of the rapid replacement of obsolete and worn-out equipment. However, such effectiveness is achieved in those instances where the old equipment is replaced not simply by new equipment but by far more productive equipment. This is why the renewal of a machinery pool must, as a rule, be combined with the radical improvement of equipment and production methods. At the moment the proportion of such work in the plans of scientific-and design organizations is still inadequate.

The utilization of fundamentally new equipment usually leads to a manifold rise in labor productivity. Thus, equipment based on electrophysical, electrochemical and ray methods enables productivity to be increased in the order of two-five times and, in certain operations, dozens of times over. The use of knurling mills, precision-casting equipment, high-speed forging equipment, and of equipment for hot and cold heading produces a great effect in reducing labor consumption and saving metal and production floor space. In the textile industry new shuttleless weaving looms and spindleless spinning looms are approximately twice as productive as traditional equipment. The introduction of hovercraft for industrial transport is increasing many times over the speed of shifting freight, particularly heavy loads and when roads are impassable.

- 18 -

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CONVERGENCE OF THE METHOD OF SUCCESSIVE APPROXIMATIONS WITH SPLITTING OF THE BOUNDARY CONDITIONS IN THE SOLUTION OF A BOUNDARY VALUE

AUTHOR--PALTSEV, B.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYCHISLITEL'NOI MATEMATIKI I MATEMATICHESKOI FIZIKI, VOL. 10, MAY-JUNE 1970, P. 785-788

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--BOUNDARY VALUE PROBLEM, SUCCESSIVE APPROXIMATION, NAVIER STOKES EQUATION, INCOMPRESSIBLE FLUID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605007/D10 STEP NO--UR/0208/70/010/000/0785/0788

CIRC ACCESSION NO--AP0139890

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF A PLANE STEADY PROBLEM OF MOTION OF A VISCOUS IMCOMPRESSIBLE FLUID IN A BOUNDED REGION WITH A SMOOTH BOUNDARY. THE PROBLEM IS SOLVED WITH THE AID OF AN ITERATIVE METHOD WHICH IS BASED ON SUCCESSIVE APPROXIMATIONS AND IS CLOSELY RELATED TO A SERIES METHOD PROPOSED BY PAL'TSEV (1970).

UNCLASSIFIED

PAL'TSEV, Ye. I.

JPRS 56030
18 May 72

UDC 612.74+612.816]-06:612.886

CHANGE IN REFLEX REACTION OF HUMAN MUSCLES DURING ADEQUATE VESTIBULAR STIMULATION

[Article by Ye. I. Pal'tsev and A. M. El'ner; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 2, March-April 1972, pp 61-66, submitted for publication 12 May 1970]

Abstract: This paper gives experimental data on changes in the reflex excitability of human leg muscles in response to adequate vestibular stimulation (body rotation in the sagittal plane with an angular acceleration). Functional changes in the segmentary apparatus developed up to 15-20 msec after the onset of rotation. Variations in reflex excitability of different muscles in response to the same vestibular stimulation (direction of body rotation) were dissimilar. Changes in reflex excitability of the same muscle were also different in response to various vestibular stimuli. It is concluded that the vestibular apparatus may perform a coordinating function not only during quasistatic control of movements, but also during dynamic control. It is therefore believed that even short, latent muscular spinal reactions which appear in response to body movements may be governed by the vestibular apparatus.

Presently available data on vestibular-spinal influences in man obtained using caloric or electric stimulation (Ye. B. Babskiy, et al.; I. Ya. Kalinovskaya and Yu. S. Yusevich; Ya. M. Kots and V. A. Mart'yanov), due to the artificiality of such stimuli (K. L. Khilov), do not make it possible to judge the nature of vestibular effects on the functional state of the segmentary structures in the spinal cord participating in the regulation of posture and movements under natural conditions. Attempts at clarifying the influence of adequate vestibular stimulation on the reflex excitability of the muscles were undertaken by Matthews and Whiteide. However, the results of these investigations, made only on healthy subjects and without registering accelerations, do not make it possible to answer the question convincingly as to what is responsible for the changes.

USSR

UDC 613.644

IL'NITSKAYA, A. V. and PAL'TSEV, Yu. P., Moscow Institute of Hygiene imeni F. F. Erisman

"Combined Effect of Ultrasound and Noise of Standard Parameters"

Moscow, Gigiyena i Sanitariya, No 5, 1973, pp 50-53

Abstract: Various physiological functions were studied in healthy male and female subjects age 19 to 22 after exposure to (a) ultrasound at a frequency of 21 kHz and 110 db, (b) broad-band sound at the main frequencies from 1,000 to 10,000 Hz and 75 db, and (c) ultrasound and noise of the above parameters. Low-frequency ultrasound of 110 db produced functional changes in the central nervous (e.g., abnormal brain bioelectrical activity) and cardiovascular (e.g., lowering of blood pressure, marked acceleration of the pulse) systems and vestibular apparatus (irregular nystagmic rhythm, decrease in amplitude and, in some cases, absence of nystagmus even after repeated stimulation of the analysor). The combined effect of high-frequency noise and ultrasound caused the same changes as ultrasound, but the vestibular reaction to the two stimuli was more pronounced than to ultrasound alone. Ultrasound of 110 db did not affect acoustic sensitivity.

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USSR

UDC 613(470)(091)

SHITSKOVA, A. P., AKSYUK, A. F., KEYLIKHIS, G. A., GNOYEVAYA, V. L., GUSEV, M.I., ZHILIN, P. N., KOTKIN, Ye. L., PAL'TSEV, Yu. P., and YASHENOV, G. G.

"Coping With Current Health Problems in the RSFSR"

Moscow, Gigiyena i Sanitariya, No 12, 1972, pp 8-16

Abstract: Health problems were a major concern of the communist leaders after the revolution who swiftly organized agencies and services to deal with epidemics and famines. As these were brought under control, health officials became involved in city planning, design and building of houses, etc. The increasing tempo of industrialization led the authorities by the 1930's to study atmospheric pollution and the disposal of municipal and industrial sewage. Water pollution and suitable use of water resources were major interests by the 1940's. Following the war, industrial hygiene and occupational diseases along with food poisonings became the center of attention. In the 1960's research was focused on the problems created by the chemicalization of agriculture, the use of pesticides in particular. The effects of exposure to ultrasound, radiation, microwaves, and other technological advances are now under study. Much stress is placed on preventive medicine, with frequent mass check-ups of the population, particularly children and adolescents. The importance of

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USSR

SHITSKOVA, A. P., Gigiyena i Sanitariya, No 12, 1972, pp 8-16

(5)

comprehensive, accurate health statistics was recognized in the 1920's and they are constantly being refined and improved as an indispensable basis for planning and taking effective action.

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USSR

UDC 669.18-412:621.746.753

KLEMESHOV, G. A., DOROKHOV, V. I., PALYANICHKA, V. A., and LITVINOVA, V. I.
(Ukrainian Scientific Research Institute of Metals)

"Rational Method of Deoxidizing Silicon Manganese Steel for the Production of Thick Slabs"

Moscow, Stal', No 9, Sep 72, pp 798-801

Abstract: The effect of preliminary and final reduction of 09G2S silicon-manganese steel (GOST 5520-69) on the process kinetics of the formation and removal of non-metallic impurities and on the variation of residual concentrations of deoxidizing elements (Al, Mn, Si, Ti) during casting and crystallization of 9-m slabs is considered. The investigation was carried out on four smeltings produced in 135-m open-hearth furnaces with silicon-manganese domes at the Zhdanov Metallurgical Plant. Preliminary reduction in the furnace by manganese-silicon was shown to be more effective than introducing it into the ladle together with ferrosilicon, aluminum, and ferrotitanium. A further advantage is that there is less contamination of the metal with oxide impurities and there is a more uniform distribution between the upper and bottom slab sections. The residual Al content increased from thousandths of a percent to 0.016-0.020% (about 5 to 6 times) and slab rejection due to unsatisfactory indexes of impact strength at low temperatures is practically eliminated.
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Foundry

USSR

UDC 669.18:621.746.58

DOROKHOV, V. I., PALYANICHKA, V. A., KLEMESHOV, G. A., YEVTYUTOV, V. P., GLAZOV, V. I., PANASENKO, V. G., RYABININ, B. G., and ROSTORGUYEV, V. D., Ukrainian Scientific Research Institute of Metals

"Casting of Large Sheet Ingots of Low-Alloy Steel Under Protective Slag Coating"

Moscow, Metallurg, No 3, Mar 72, pp 17-19

Abstract: Joint investigations of the Ukrainian Scientific Research Institute of Metals and the Zhdanov Plant imeni Il'ich, revealed that stratifications in sheets of silicomanganous steel can be caused by accumulations of macro-inclusions of endogenic origin or increased content of hydrogen. Experiments in casting sheet ingots of silicomanganous steel 09G2S, weighing 118-27.0 tons, under a protective coating of synthetic slag, are described. The experiments were conducted in order to decrease stratifications resulting from nonmetallic impurities. It was found that by using slag with optimum physico-chemical properties in casting steel, the content of oxide inclusions can be lowered by more than 30% and stratifications can be practically eliminated in thick sheets. The nonmetallic inclusions do not change

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DOROKHOV, V. I., et al., Metallurg, No 3, Mar 72, pp 17-19

character, but are merely redistributed, and a refining of metal from oxides, particularly from alumina, takes place. One illustration, two tables.

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PAL'YANOV, O. I.

JPRS 55932
9 May 72

DATA OF A PHYSIOLOGICAL-HYGIENIC STUDY OF THE CLOTHING OF POLAR PERSONNEL UNDER ANTARCTIC CONDITIONS

[Article by O. I. Pal'yanov, Arctic and Antarctic Scientific Research Institute; Leningrad, Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii, Russian, No 81, 1971, signed to press 15 December 1970, pp 111-114]

The severe climate of Antarctica, characterized by a combination of low air temperature and strong wind, creates unfavorable living and working conditions. Because of this climatic clothing acquires an augmented role in the protection of man from the effects of the harmful conditions of the environment.

Soviet polar personnel are provided with a variety of climatic clothing, enabling changing the composition of the clothing as a function of the duration of exposure to the open air, meteorological conditions, and the nature of the work activity.

Beginning with the First Antarctic Expedition, N. S. Paleyev, A. I. Makarov et al. conducted a study of climatic clothing for the purpose of determining its heat protective properties (2, 3, 4, 5). The clothing was assessed on the basis of the heat emission of the organism, but without taking into consideration the production of heat during work.

During the period of the Fourteenth Soviet Antarctic Expedition, 1968-1970, physiological-hygienic studies were made of existing types of climatic clothing at Molodezhnaya Station; the heat protective properties of the clothing were evaluated in relation to both heat conduction and heat generation. Three different combinations of climatic clothing were selected, which are used most frequently by polar personnel: outfits No 1 (KAE suit), No 2 (KAE suit and leather suit), and No 3 (leather suit and KAE jacket). All outfits were worn over standard clothing (shorts, woolen underwear, flannel shirt, wool sweater, wool socks, and cloth leg wrappings). The headgear used was a leather hat with ear flaps, the footwear were felt boots or heated boots, and fur mittens were used to protect the hands.

A group of 19 polar personnel aged 20 to 35, the first participants in an antarctic expedition, was used in 132 tests of all three clothing combinations (25 to 30 times for each combination).

(3)

USSR

DONCHENKO, V. A., ZUYEV, V. YE., KRASYUK, I. K., PAL'YANOV, P. A., PASHININ, P. P., PROKHOROV, A. M., KABANOV, M. V.

"Energy Attenuation of Supershort Pulses of Optical Emission by Dispersive Media"

Moscow, Pis'ma v ZhETF, Vol 18, No 4, 1973, pp 230-232

Abstract: Preliminary results are presented from direct measurements of one of the basic characteristics of a dispersive medium -- the attenuation coefficient -- on its interaction with a supershort pulse of optical emission. A decrease in attenuation of the supershort pulse by comparison with the case of emission which is continuous in time was detected experimentally. The results of measurements of the optical thickness of suspensions of polystyrene latexes and lycopodium spores are tabulated for continuous and pulsed emission. The observed "transparency" of the medium which is three times as great in the case of a laser pulse by comparison with continuous radiation is not connected with such effects as the thermal effect on the properties of the medium, the spectroscopic effect of saturation and self-focussing.

USSR UDC 621.373.826:53

DONCHENKO, V. A., KABANOV, M. V. and PAL'YANOV, P. A.

"Scattering a Short Light Pulse in a Dispersive Medium"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 351-355 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D389)

Translation: An experimental investigation is conducted on the effect of the time of interaction between the radiation and the scattering particles on the form of the optical signal passing through a hazy medium. Three forms of modeled media having well-known parameters were used: suspensions of club moss (Lycopodium) in water-alcohol solution, a solution of milk in water, and a suspension of polystyrene in water. The maximum optical thickness of the scattering media did not exceed 4.7. No distortions of the light pulse were detected in its passage through the dispersive medium. This permits the conclusion that the interaction time of the radiation and the scattering particles is no greater than $3 \cdot 10^{-9}$ seconds. A. K.

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USSR UDC 543.848

VOLODINA, M. A., IVIN, S. Z., and PAL'YANOVA, M. V., Chair of Organic Chemistry

"Reduction Method for Chlorine and Bromine Determination in Organophosphorus Compounds

Moscow, Vestnik Moskovskogo Universiteta, Seriya II -- Khimiya, Vol 11, No 5, Sep-Oct 70, pp 632-634

Abstract: A method is suggested for chlorine and bromine determination in organophosphorus compounds based on pyrohydrogenolysis of the substance in the stream of a nitrogen-hydrogen mixture obtained in the thermal decomposition of ammonia. The pyrohydrogenolysis apparatus is as follows: Ammonia goes through a drying bottle with alkali into two quartz tubes (10-12 mm) heated by two electric furnaces. The tubes contain catalysts for decomposing the ammonia. The electric furnaces are heated to 600-700° C. The mixture of nitrogen and hydrogen obtained in the decomposition of the ammonia goes through a washing bot-

USSR

VOLODINA, M. A., et al., Vestnik Moskovskogo Universiteta, Seriya II -- Khimiya, Vol 11, No 5, Sep-Oct 70, pp 632-634

tle with a concentrated aqueous ammonia solution to a quartz tube heated by two electric furnaces, one large and immobile, the other small and mobile. The tube is equipped with a small cooler. The pyrohydrogenolysis is carried out with the small mobile furnace (400-500°). The article includes a sketch of the device.

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1/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STATE OF THE BLOOD COAGULATION AND VASCULAR PERMEABILITY IN OLD AGED PATIENTS WITH CEREBRAL CIRCULATORY DISORDERS -U-
AUTHOR--PALYANITSA, V.N.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 114-116

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD COAGULATION, BRAIN, CIRCULATORY SYSTEM, GERONTOLOGY, ATHEROSCLEROSIS, PLASMA PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0975 STEP NO--UR/0475/70/000/003/0114/0116

CIRC ACCESSION NO--AP0102914

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BLOOD COAGULATION AND ANTICOAGULATION, VASCULAR PERMEABILITY WAS STUDIED IN 109 PATIENTS WITH CEREBRAL CIRCULATORY DISORDERS DEVELOPING AT THE BACKGROUND OF ATHEROSCLEROSIS. RESULTS SUGGEST THAT ELDERLY AND OLD PATIENTS INDEPENDENT ON THE TYPE OF CEREBRAL CIRCULATORY DISTURBANCE SHOW MORE ELEVATED INDICES OF BLOOD COAGULATION THAN YOUNG AND MEDIUM AGED PATIENTS. THE ACTIVITY OF THE ANTICOAGULATION SYSTEM BECOMES INHIBITED WITH AGE. VASCULAR PERMEABILITY IN OLD AGED PATIENTS IS CHARACTERIZED BY INCREASED FILTRATION FOR FLUIDS AND PLASMA PROTEINS.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202320013-6"

Acc. Nr: AP0047200 Ref. Code: UR0564

PRIMARY SOURCE: Terapevticheskiy Arkhiv, 1970, Vol 42, Nr 1, pp 31-33

THE CONDITION OF THE COAGULATING AND ANTICOAGULATING SYSTEMS OF THE BLOOD IN PATIENTS WITH HYPERTENSIVE DISEASE IN HYPERTENSIVE CRISES AND DISORDERS OF CEREBRAL CIRCULATION

G. I. Rozgon, V. N. Palyanitsa

Summary

As a result of the investigations conducted it was revealed that in persons with crises of II degree, transitory disorders of cerebral circulation and ischemic strokes there took place inhibition of the indices of the anticoagulating system of the blood and increase of the coagulating activity. Hemorrhargic strokes were accompanied by an inconsiderable decrease of the coagulating system and increase of the fibrinolytic activity.

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REEL/FRAME
19790700

4th 2

USSR

UDC 621.315.592:546.28

CHISTYAKOV, YU.D., PALIYENKO, A.N., GULIDOV, D.N., SECHENOV, D.A.

"Some Features Of The Growth Of Autoepitaxial Layers Of Silicon During Application Of Exterior Electrical Field"

Sb. nauch.tr. po probl. mikroelektron. Mosk.in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 161-164 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B77)

Translation: Consideration is given to the effect of an electrical field on the rate of flow of a chemical reaction at the surface of an increasing autoepitaxial layer (AEL) and on the controlled introduction of impurities into the AEL. Experimental data are presented on the growth rate of an AEL from a vapor-gas mixture ($SiCl_4 + H_2$) during application of an exterior electrical field with an intensity of 1 ÷ 3kB/cm. 6 ref. Summary.

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USSR

UDC 533.6.013.42

PALYUNAS, V. A., PALYUNENE, A. I.

"On Flexural-Torsional Oscillations of a Cantilever in a Liquid"

V sb. Dinamika gidrotekhn. sooruzh. (Dynamics of Hydraulic Engineering Equipment -- Collection of Works), Moscow, 1972, pp 112-115 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V401)

Translation: The problem of finding the eigenfrequencies of flexural-torsional oscillations of a cantilever in a liquid is solved for the case when the transverse cross section has an axis of symmetry. The Ritz method is applied. It is assumed in determining the parameters of the kinetic energy of the cantilever-liquid system and the potential energy of the cantilever that the shapes of the oscillations in a vacuum and in a liquid are the same. A numerical example is given for a cantilever having a transverse cross section in the form of a bracket. The values obtained for the first four frequencies of the natural flexural-torsional oscillations in water and in air are sufficiently close to experimental data. Ye. A. Vol'mir.

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USSR UDC 533.6.013.42

PALYUNAS, V. A., YAKUBAUSKAS, V. V.

"On the Determination of Apparent Masses of a Liquid for Rigid and Flexible Bodies by the Electrohydroanalogy Method"

V sb. Dinamika gidrotekhn. sooruzh. (Dynamics of Hydraulic Engineering Equipment -- Collection of Works), Moscow, 1972, pp 110-112 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V411)

Translation: A practical way of using the formula for determining apparent masses of a liquid by the electrohydroanalogy method for rigid and flexible bodies is presented that was obtained earlier by V. A. Palyunas (Nauch. tr. vyssh. uchebn. zavedeniy lit SSR. Vibrotekhnika (Scientific Works of Higher Educational Institutions of Latvian SSR. Vibration Engineering), 1968, No. 2, pp 69-80 -- RZhMekh, 1968, 10B428). Ye. A. Vol'mir.

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USSR

UDC 533.6.013.42

PALYUNAS, V. A., PALYUNENE, A. I.

"On Flexural-Torsional Oscillations of a Cantilever in a Liquid"

V sb. Dinamika gidrotekhn. sooruzh. (Dynamics of Hydraulic Engineering Equipment -- Collection of Works), Moscow, 1972, pp 112-115 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V401)

Translation: The problem of finding the eigenfrequencies of flexural-torsional oscillations of a cantilever in a liquid is solved for the case when the transverse cross section has an axis of symmetry. The Ritz method is applied. It is assumed in determining the parameters of the kinetic energy of the cantilever-liquid system and the potential energy of the cantilever that the shapes of the oscillations in a vacuum and in a liquid are the same. A numerical example is given for a cantilever having a transverse cross section in the form of a bracket. The values obtained for the first four frequencies of the natural flexural-torsional oscillations in water and in air are sufficiently close to experimental data. Ye. A. Vol'mir.

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USSR

UDC 621.3.078

LUKOMSKIY, YU. A., and PAMBUKHCHYAN, S. V., Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (Lenin)

"The Design of a Multichannel Automatic System with Limits on the Control Actions"

Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy:Priborostroyeniye, Vol 17, No 1, 1974, pp 47 - 50

Abstract: A controlled system is subject to external perturbations. The controlling actions are limited in absolute strength, but the limits are sufficiently high to permit compensation, complete controllability, and system stability. These conditions are expressed in terms of a supplementary coordinate, yielding a system of nonlinear differential equations which describe the automatic system. The optimum control signals are determined in accordance with the Pontryagin maximum principle. Three basic regions are determined: where no control action is limited by the restrictions, where all control actions are at the permissible maximum, and where some of the control actions are extremal and others are not. In the first region the equations determining the optimal control actions are linear; in Volume 15, No 8 of this journal, Lukomskiy and Voskobovich showed that the independent variable t could be excluded to yield an expression which uniquely determines the structure and parameter of optimal feedback relationships in this region.

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USSR

LUKOMSKIY, YU. A. et al., Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy Priborostroyeniye, Vol 17, No 1, 1974, pp 47 - 50

When all control actions are at the maximum (saturation) level, further feedback information is not required and analysis indicates that the feedback connections should be opened. Where only some of the control actions are at saturation, their feedback connections should be opened. The remaining control action feedbacks are, in the situation, somewhat similar to the first region, but the saturated control actions can also be considered as external perturbations. This is effectively a structural change of the system, and it is accompanied by changes in the parameters of optimal feedback. The feedbacks which have been disconnected should be reconnected when the perturbation signal changes sign. The authors' calculations indicate that a variable structure system has better dynamic characteristics than a system of constant structure which ignores saturation of the control signals.

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1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF INDIFFERENT ELECTROLYTES ON THE ELECTRODE PROCESS -U-

AUTHOR-(03)-LOPUSHANSKAYA, A.I., PAMFILOV, A.V., MAKOVEY, G.L.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 193-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRODE PROCESS, ELECTROLYTE, MANGANESE CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1153 STEP NO--UR/0364/70/006/002/0193/0195

CIRC ACCESSION NO--AP0121712

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121712

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF INERT COMPONENTS IN THE SYSTEM ON THE ELECTRODE PROCESSES IS CONSIDERED. THE VALUE OF THE STEADY STAGE CURRENT DECREASES IN THE SERIES OF THE RATIOS OF THE CHARGES OF THE SUPPORTING ELECTROLYTE IONS: 3:1 GREATER THAN 3:2 GREATER THAN 2:1 GREATER THAN 1:1 GREATER THAN 2:2 GREATER THAN 1:2. THE CONCN. OF THE SUPPORTING ELECTROLYTE ALSO AFFECTS THE CURRENT, TENDING TO DECREASE IT AS THE CONCN. IS INCREASED, EXCEPT FOR MNCL SUB2 FOR WHICH THE CURRENT INCREASES WITH INCREASING CONCN. FACILITY: CHERNOVITS. GOS. UNIV., CHERNOVTSY, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--POLAROGRAPHIC REDUCTION OF METHYLENE BLUE. REPLY -U-

AUTHOR-(03)-PAMFILOV, A.V., MAZURKEVICH, YA.S., PAKHOMOVA, E.P.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 100-2

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SUBJECT AREAS--CHEMISTRY

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UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ANSWER TO R., BROICKA (IBID. 99-100) P. AND COWORKERS FIND THAT THE POLAROGRAPHIC REDN. OF METHYLENE BLUE IS IRREVERSIBLE AND GOES VIA A SEMIQUINONE, WHICH IS A 1 ELECTRON PROCESS NO MATTER WHAT THE ULTIMATE FATE OF THE SEMIQUINONE.

FACILITY: CHERNOVITS. GOS. UNIV., CHERNOVTSY, USSR.

UNCLASSIFIED

Acc. Nr.: AA0040446

Ref. Code: UR0482

USSR

UDC 62.503.53 JPRS 52248

PAMFILOV, B. K., Applicant; Moscow, Aviation Technology Institute

"Reactive Selsyn Transformer Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 55, Author Certificate No 258420 Class 21c.

Abstract: This author certificate introduces a selsyn transformer device for tracking systems, containing a transmitting selsyn provided with synch coils and a receiving selsyn provided with an energizer and output coils. For simplicity reasons and for increasing its reliability, it contains a differential transmitting selsyn, with one system of synch coils connected to the synch coils of the basic transmitting selsyn, while the other system of synch coils is connected to the synch coils of the receiving selsyn.

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